Sustainable Low Carbon Pathway for India

(with focus on Sustainable Transport)

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'Pathways towards Low Carbon Societies in Asia by 2050'

November 13, 2013 (16:30 to 18:00 hours, Venue: Japan Pavilion at COP19

Warsaw, Poland

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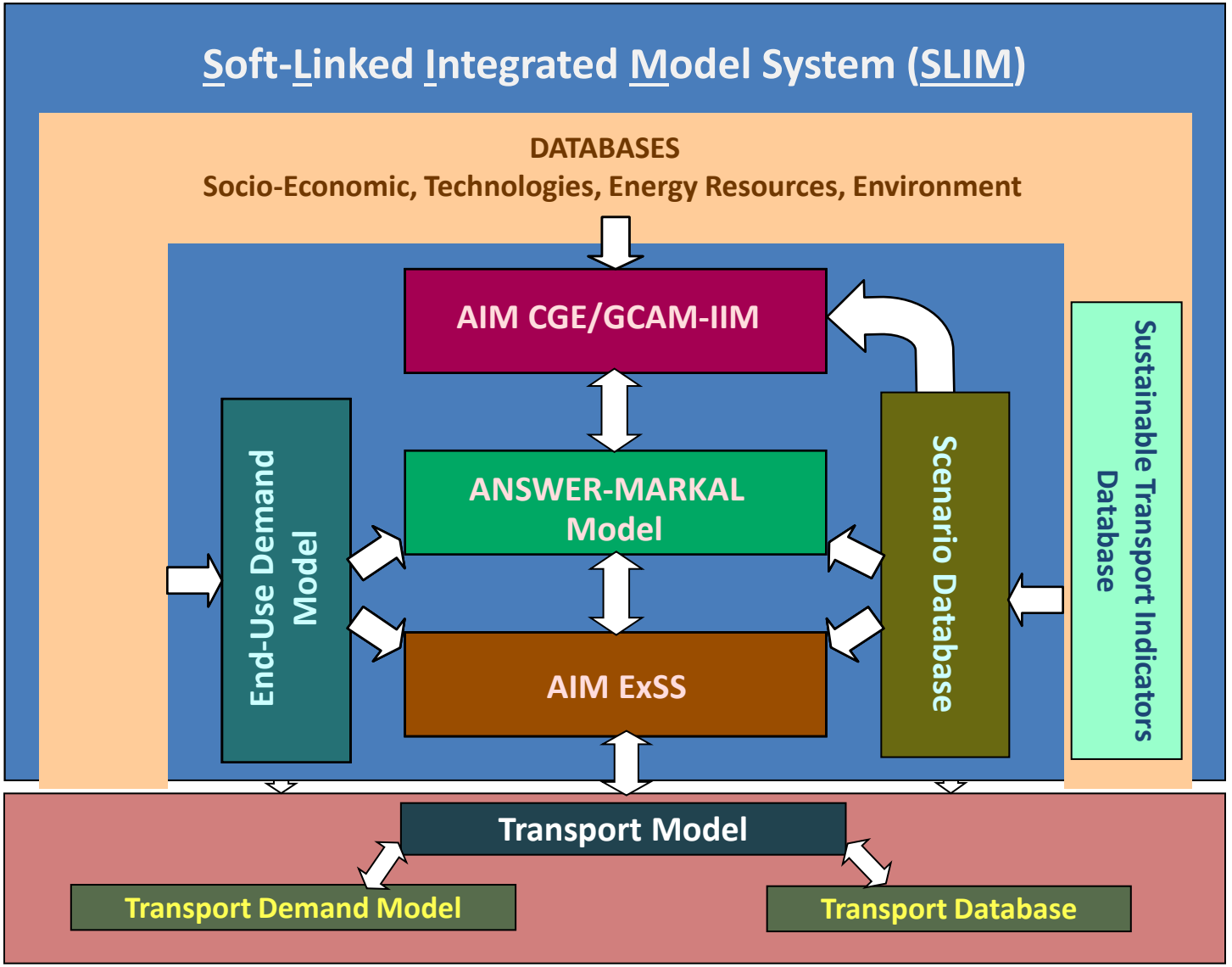
Sustainable LC Society: Scenarios and Perspectives

- Mapping Transitions (Storyline Drivers)
  i. Demographic (Gender/Age Profiles, Urban/Rural)
  ii. Income (Growth, Distribution)
  iii. Behavior (e.g. Consumption, Conservation)
  iv. Governance/Institutions (Conventional/Green)

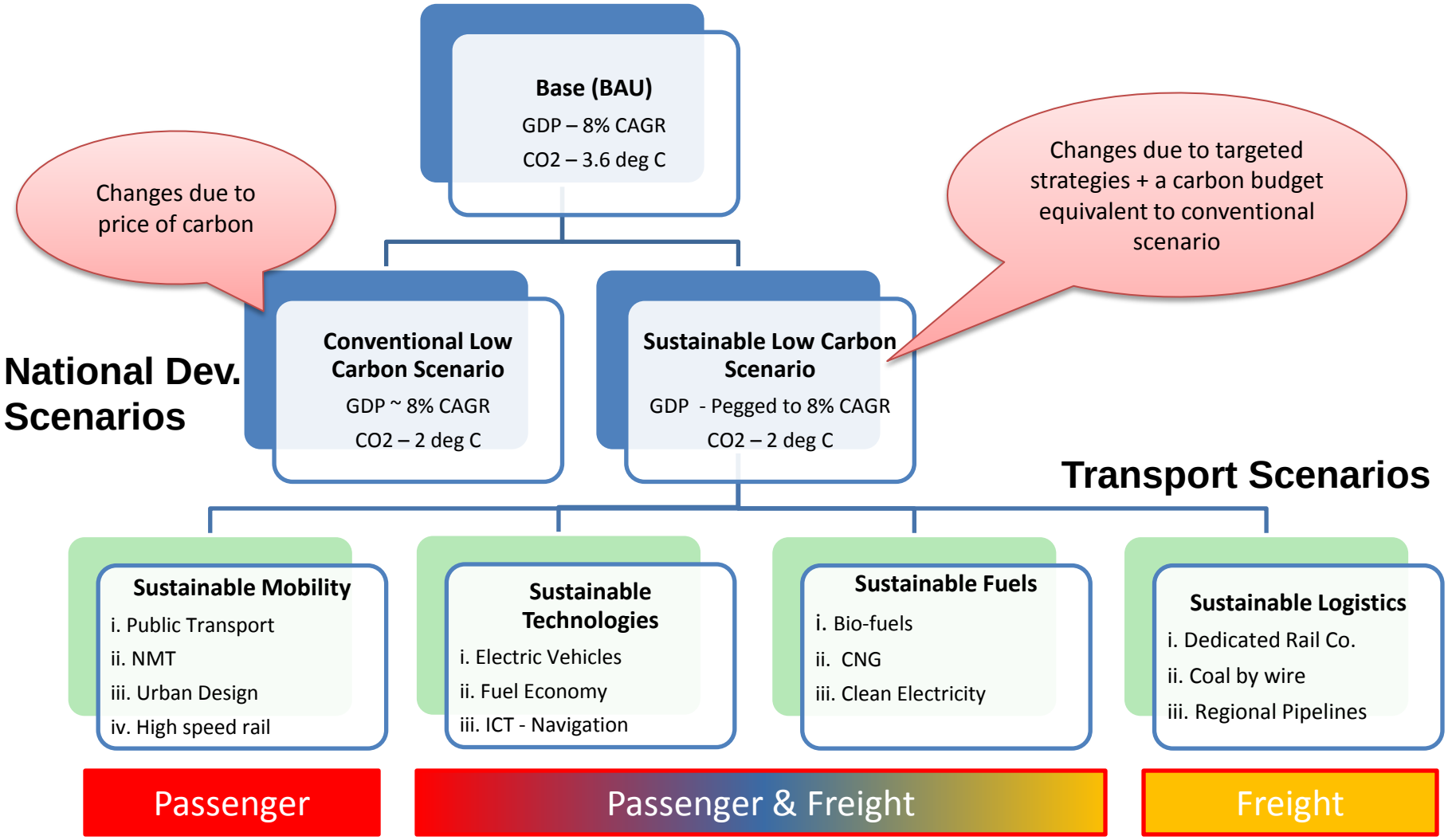
- Economics (Multiple objectives, Targets)
  i. Cooperation (to vis-à-vis goals; e.g. energy access)
  ii. Co-benefits (e.g. energy security, AQ)
  iii. Directed finance (to meet national goals)

- Policies (Market and Non-Market Policies)
  i. Technology (Avoid Lock-ins): Infrastructures; Targeted R&D; IPR
  ii. Coordinated policies to gain co-benefits (e.g. CO2 & Local Pollution)
  iii. Global carbon price/tax

Soft-Linked Integrated Model



National Development and Transport Scenarios



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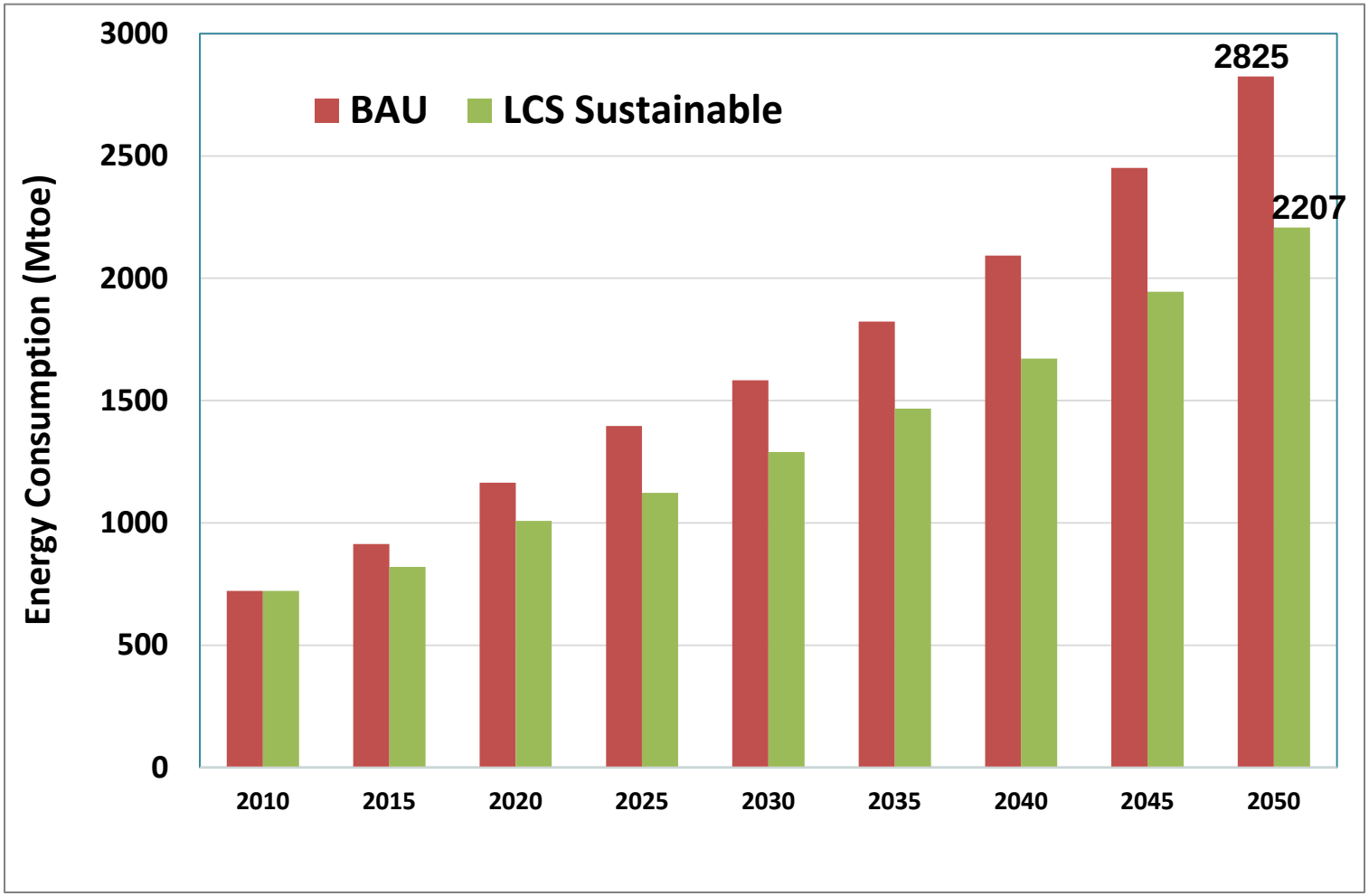
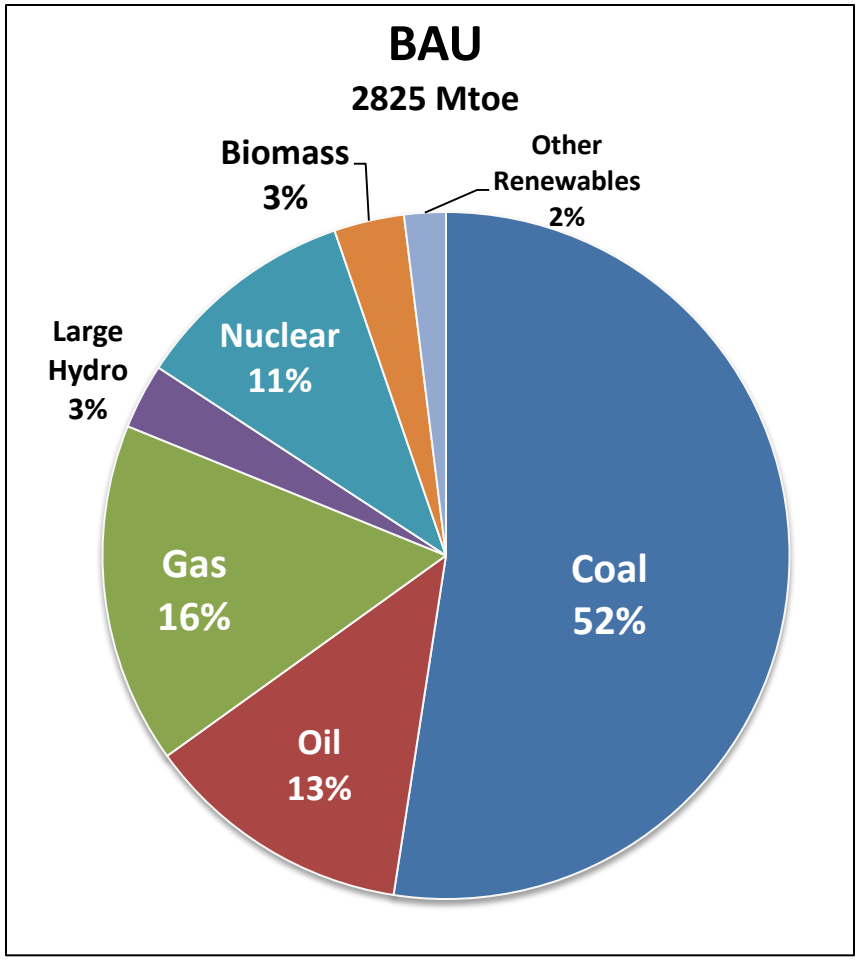
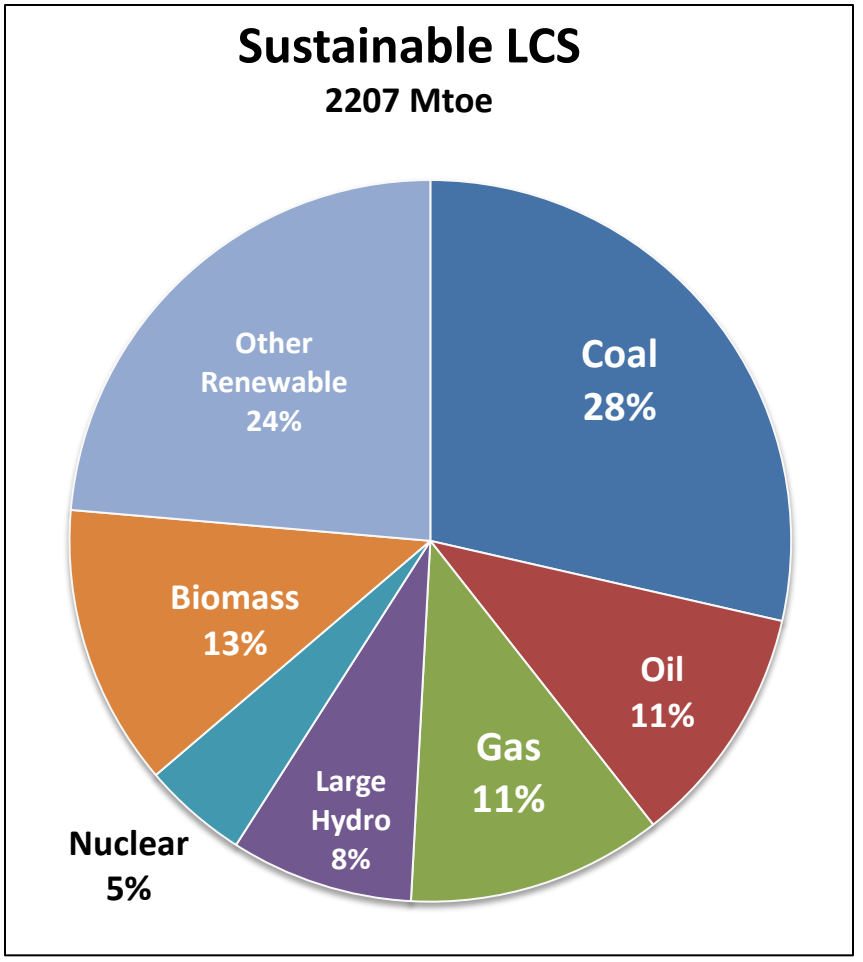
INDIA: Primary Energy



INDIA: Primary Energy Mix (2050)





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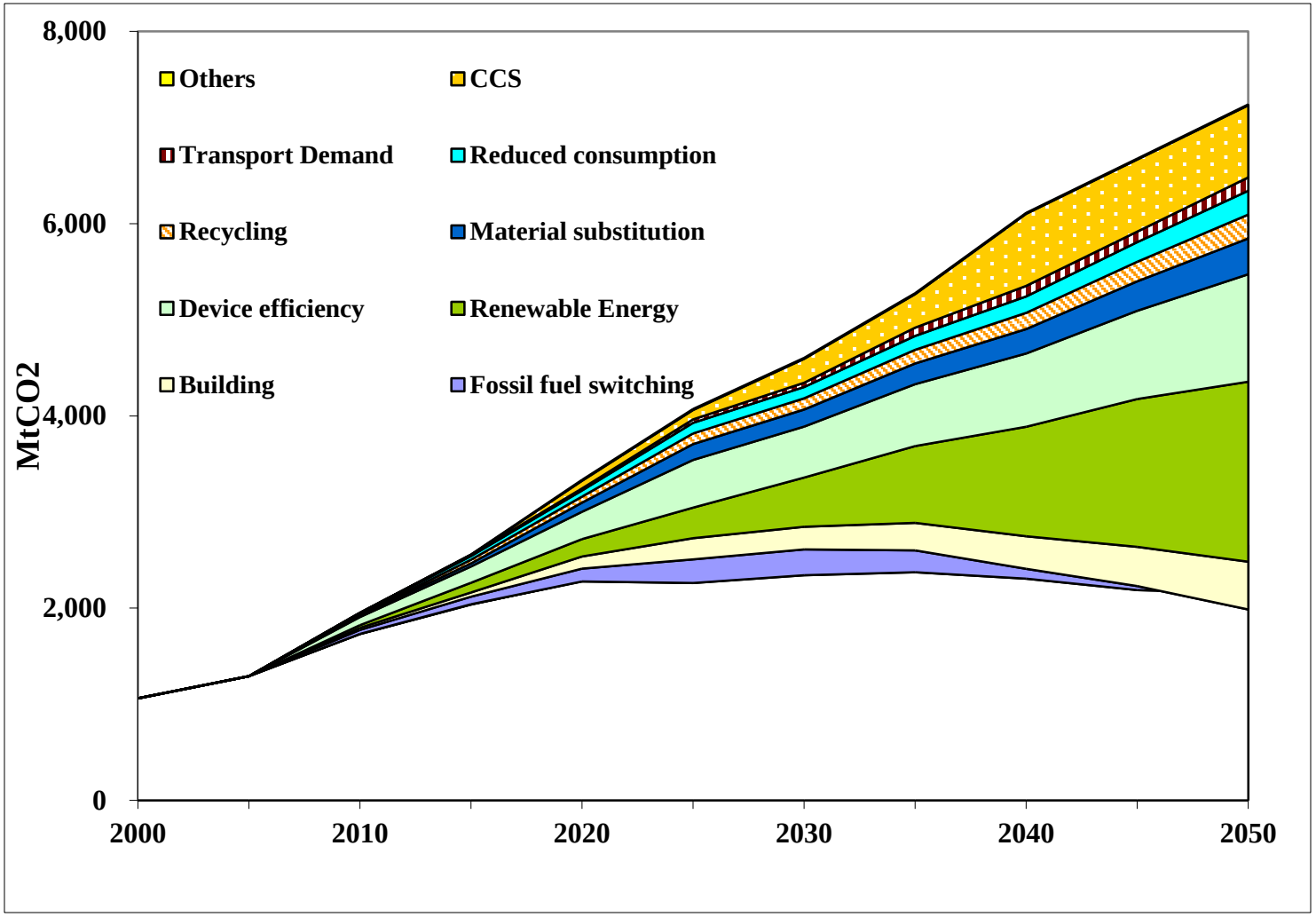
CO_2 Reduction: Sustainable Low Carbon Scenario



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Sustainable Low Carbon Transport:
Scenario Architecture and Results

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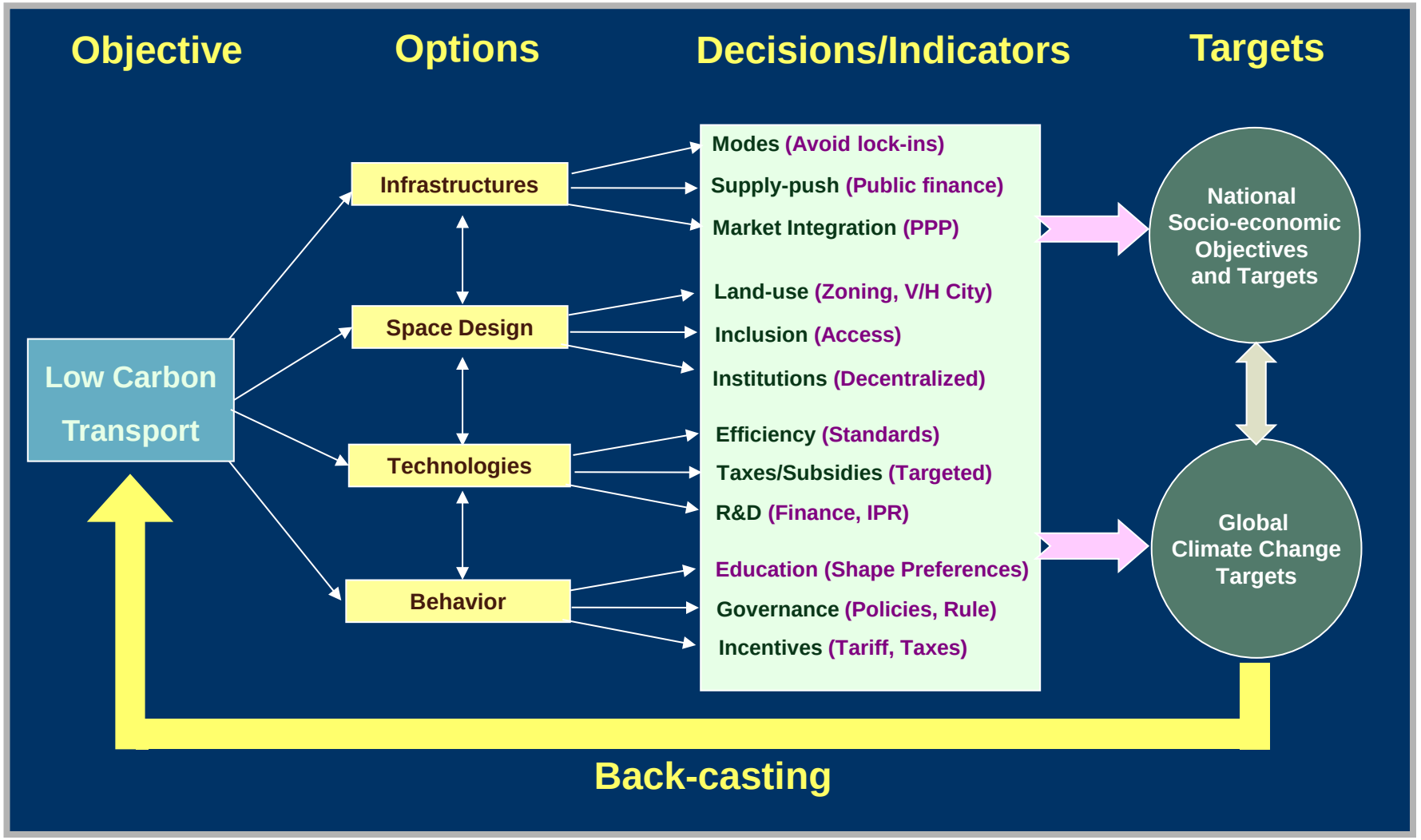
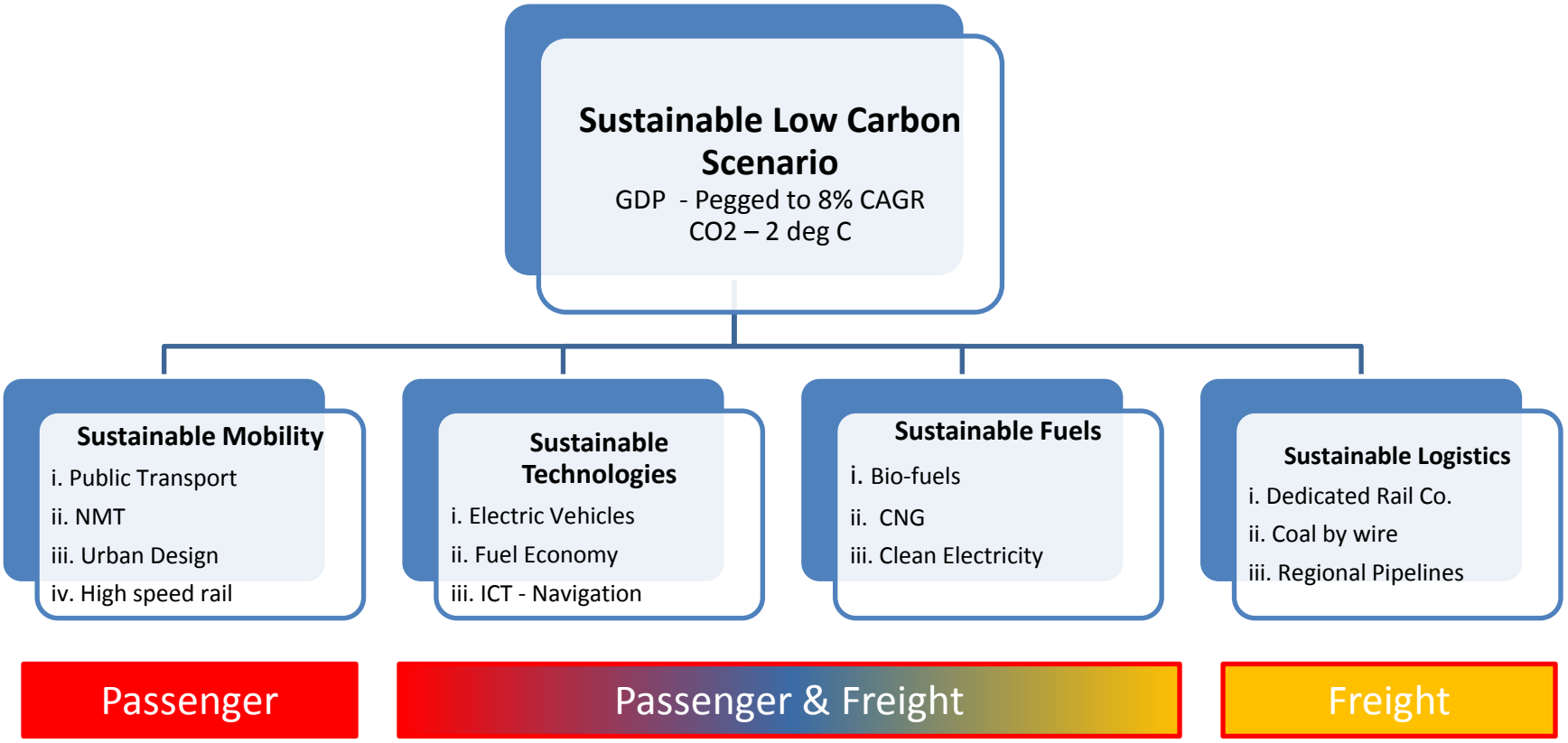
Sustainable Low Carbon Mobility Framework



Sustainable Low Carbon Transport Scenarios



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Sustainable Mobility Storyline

- Improved NMT (**Non motorised transport**)
- Public Transport (PT): Improved access to **buses** (& para-transit), **BRT, Metro**
- Urban Design : Changes in **design, density and diversity**
- Intercity : faster inter city rail connections (incl. **High Speed Trains**)
- Use of IT : e.g., **Video teleconferencing**, **websites** to facilitate car pooling , etc.

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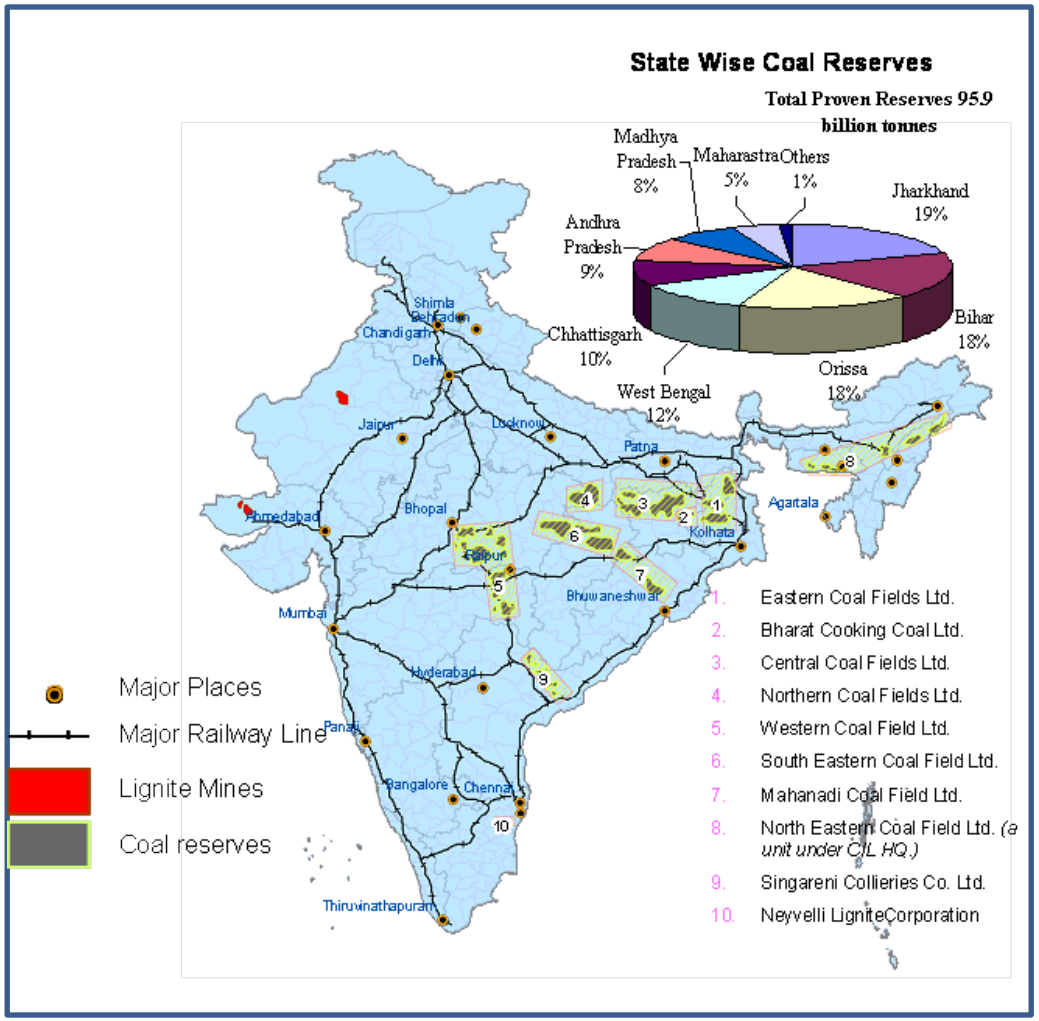
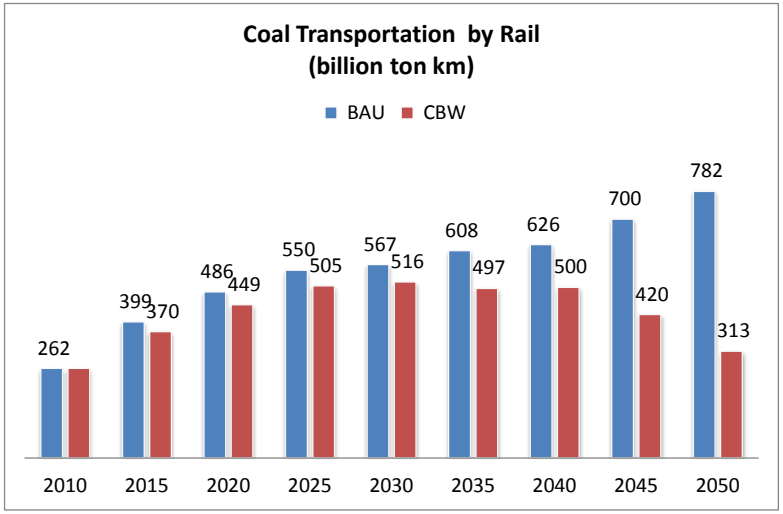
Sustainable Freight Storyline

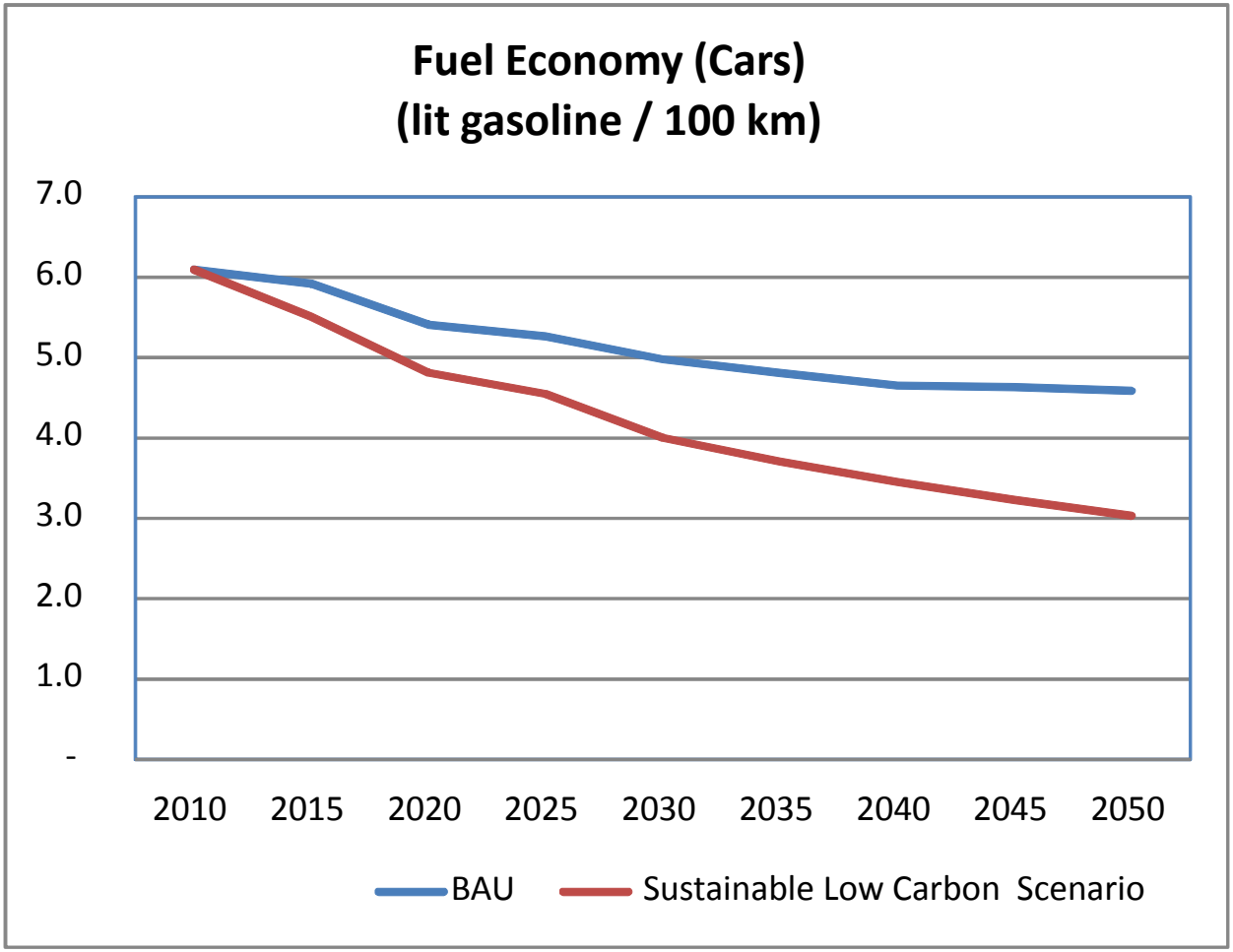
- **Rail Freight**: **Dedicated freight corridors** (DFC), shift of fuels from **rail to pipelines**, etc
- **Ports & Inland Water ways**: Greater investments in small ports and water ways
- **Coal by Wire (CBW)**:
- **Regional Cooperation**: **International Gas pipelines**, **Electricity grids** reduce demand for coal

Infrastructure Alternatives: Coal by Wire

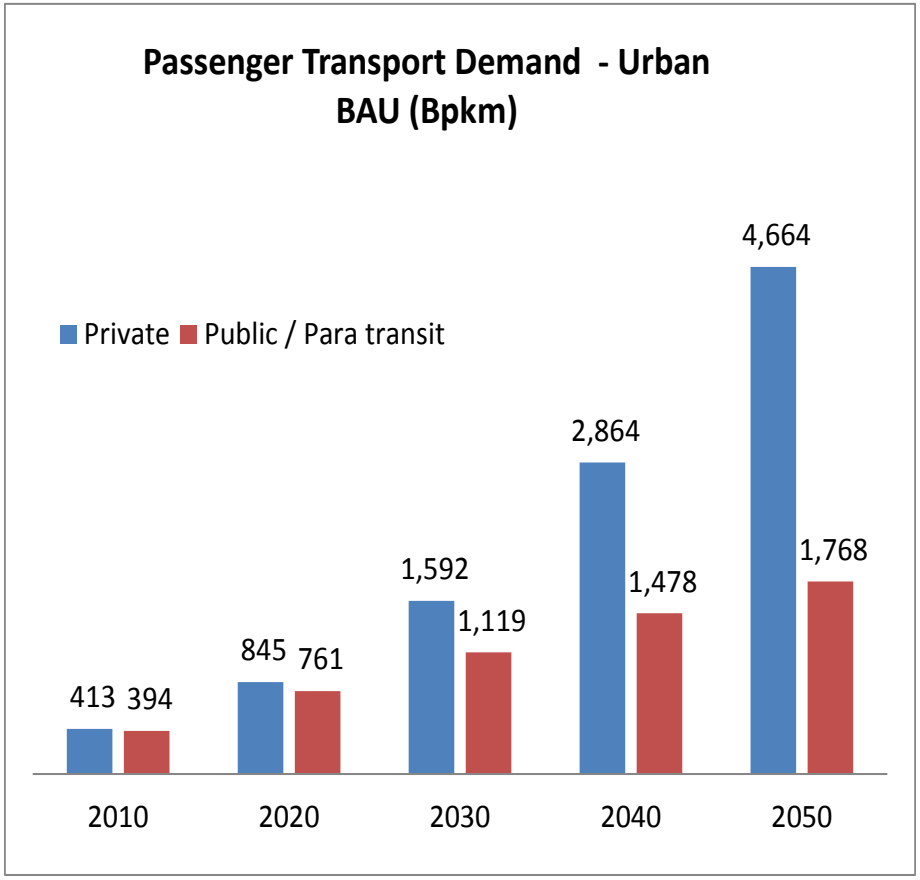


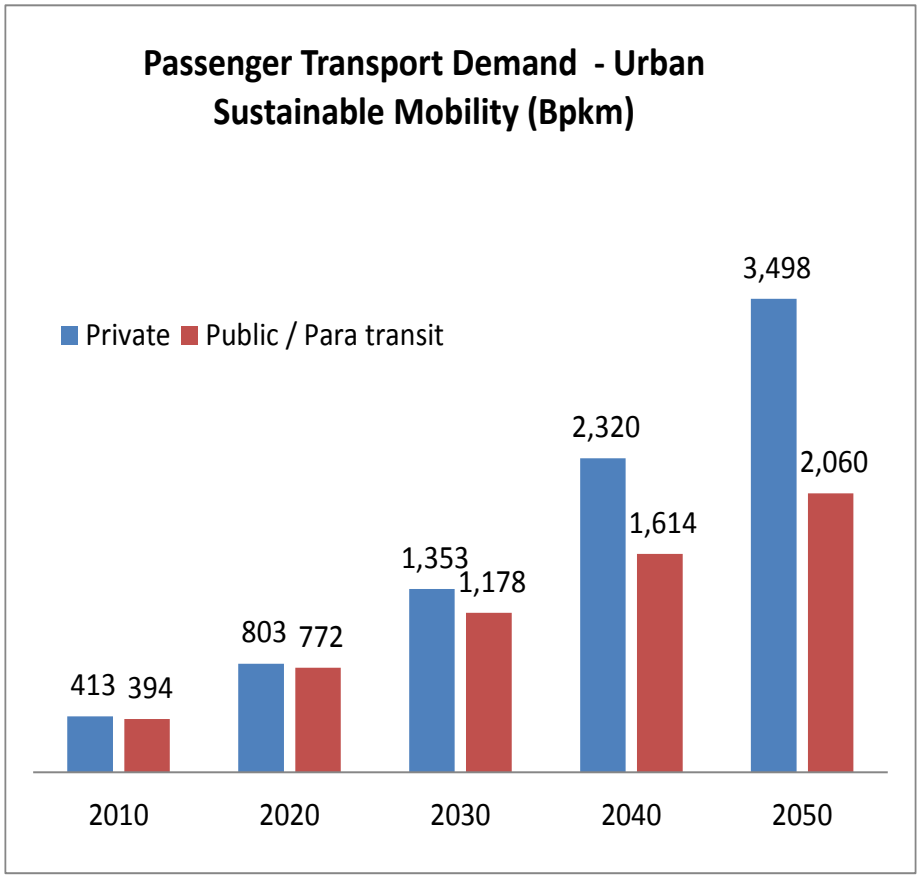


Fuel Economy: BAU and Low Carbon



Demand for Urban Transport in BAU & Sustainable Mobility





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Sustainable Low Carbon Transport:
Results of Modeling Assessment

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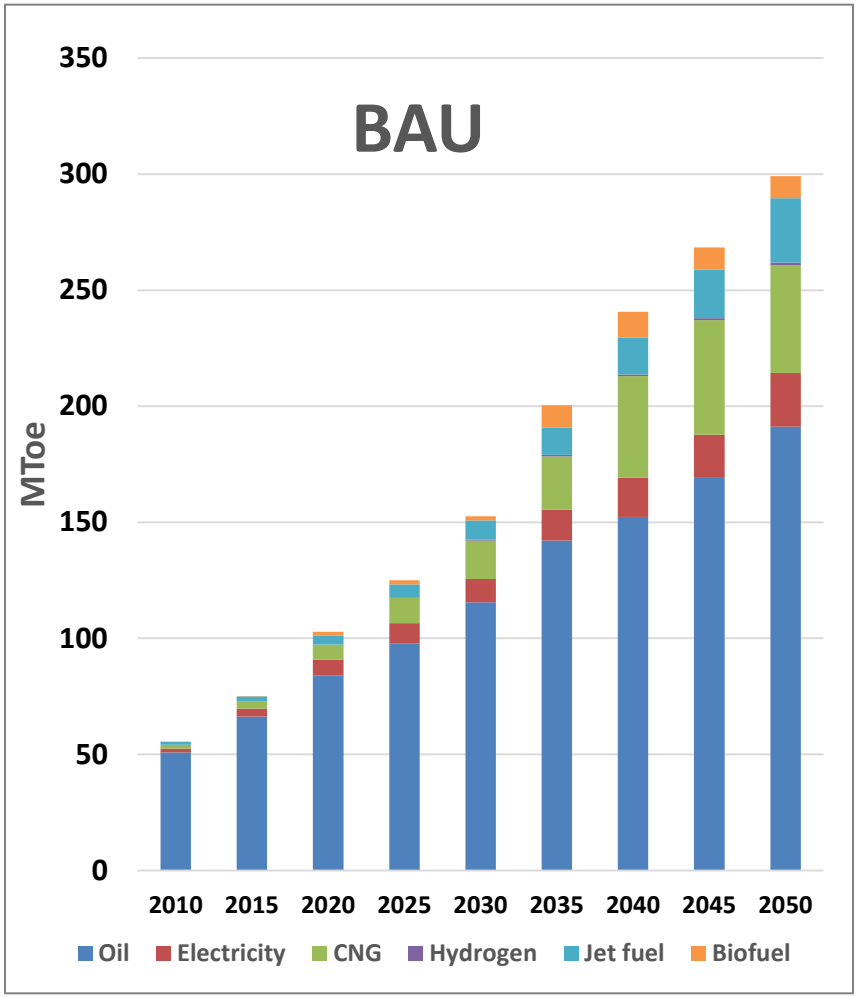
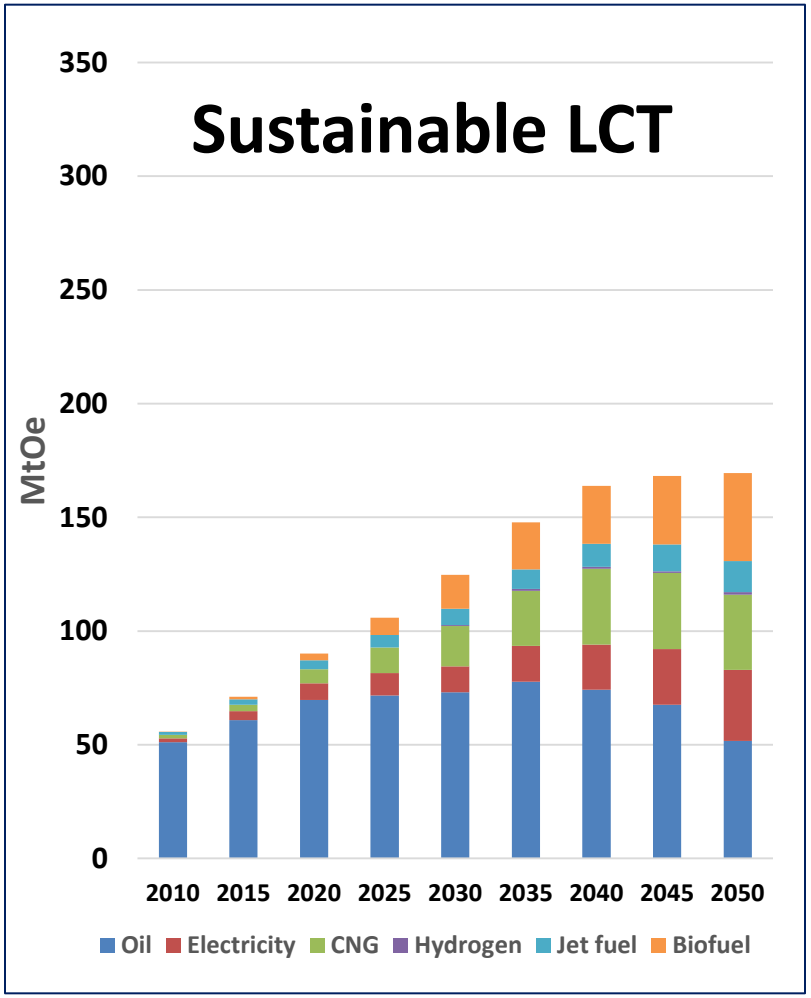
Energy Mix for Transport





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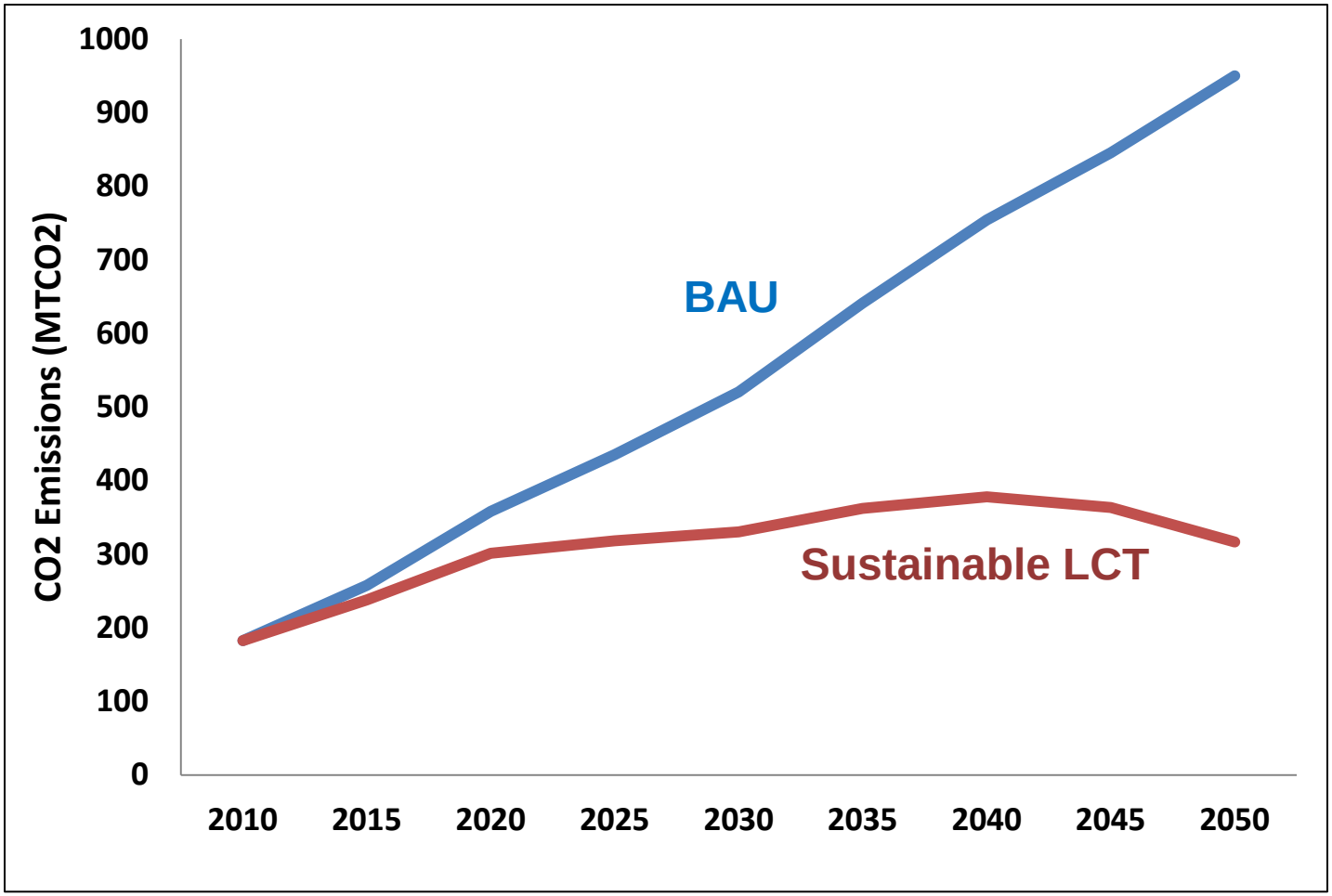
Transport Sector CO_2 Emissions



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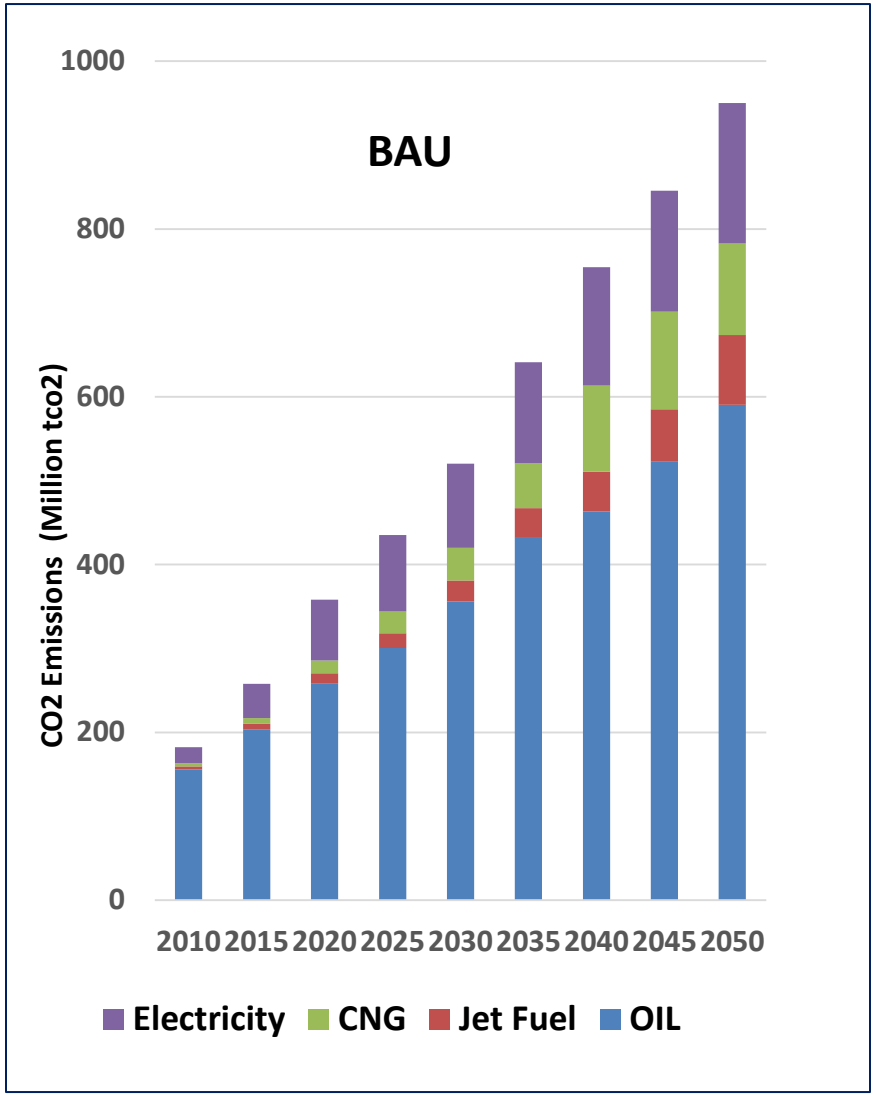
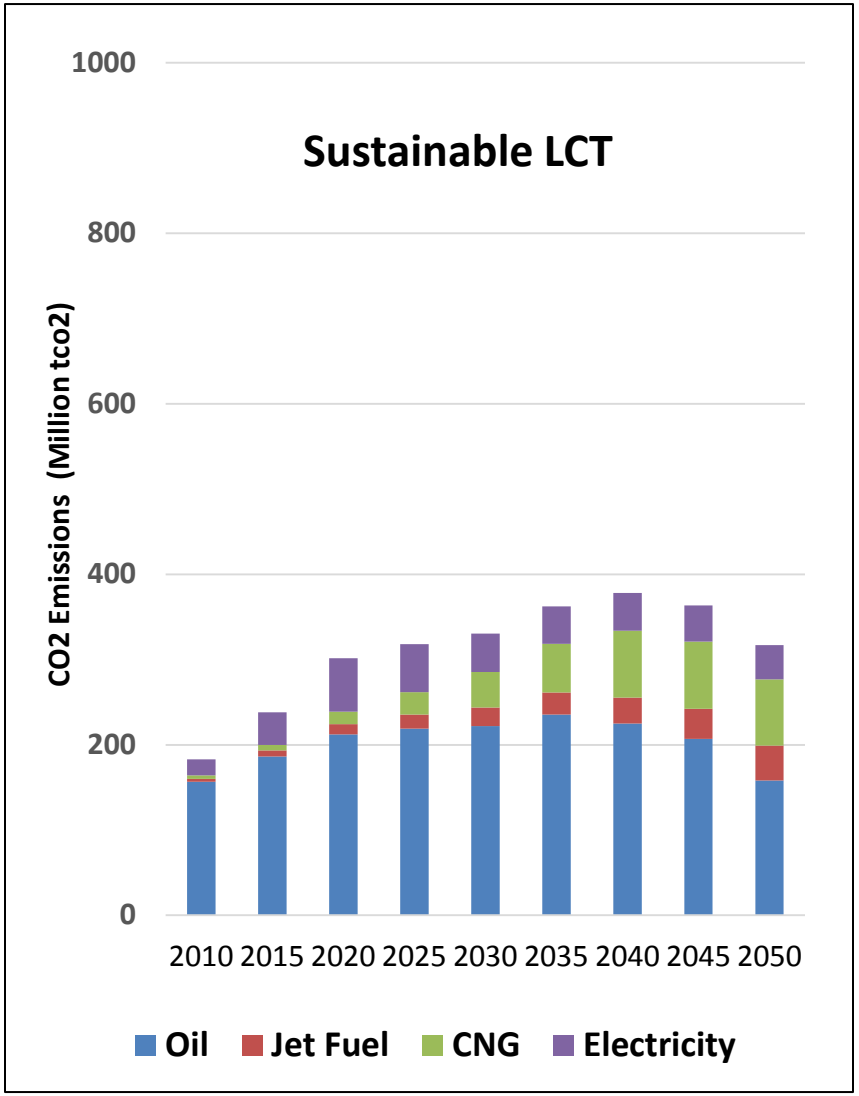
CO_2 Emissions- Transport





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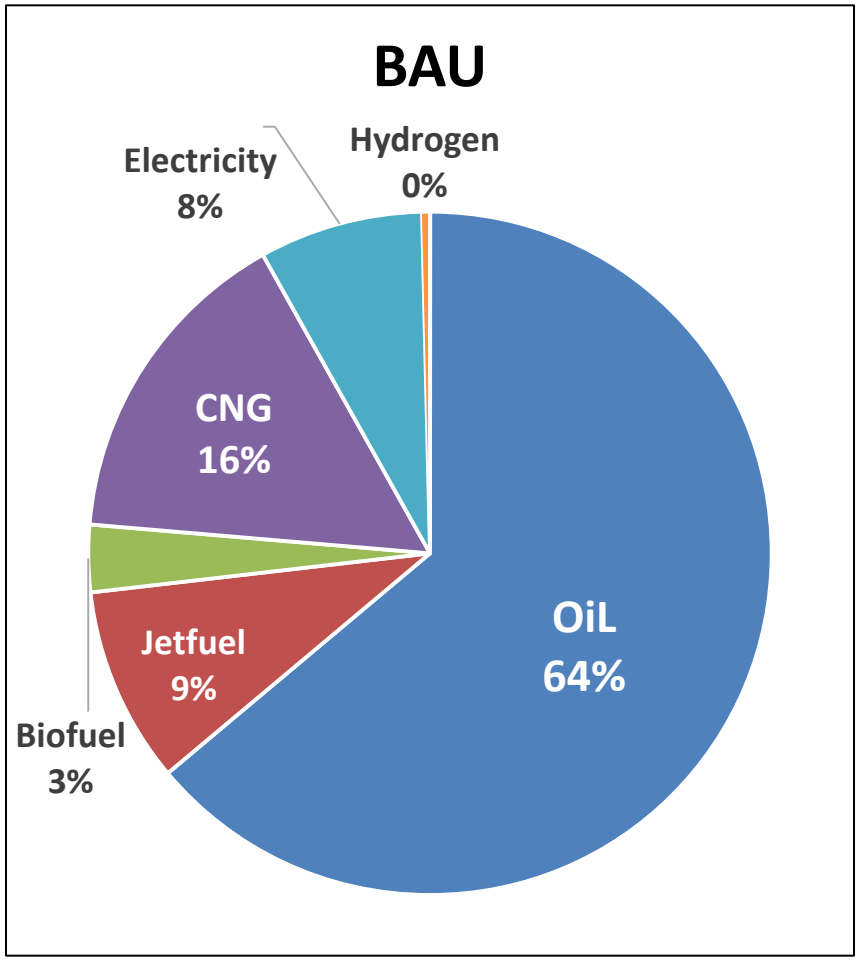
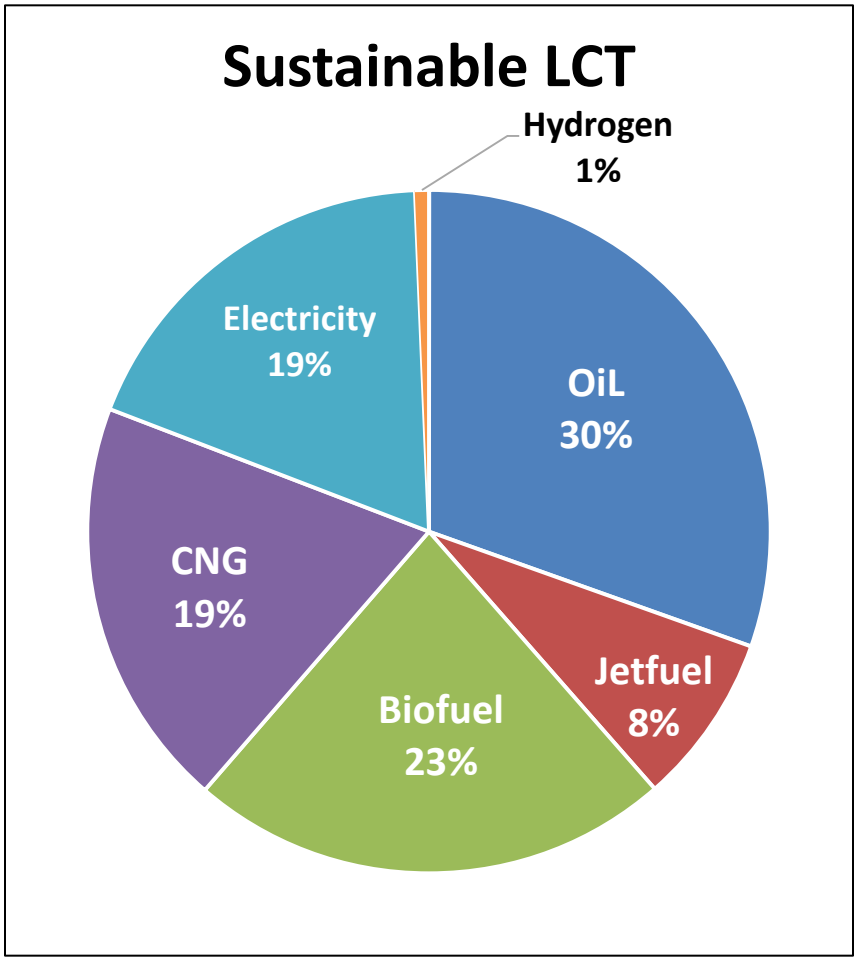
Transport Fuel Mix in 2050





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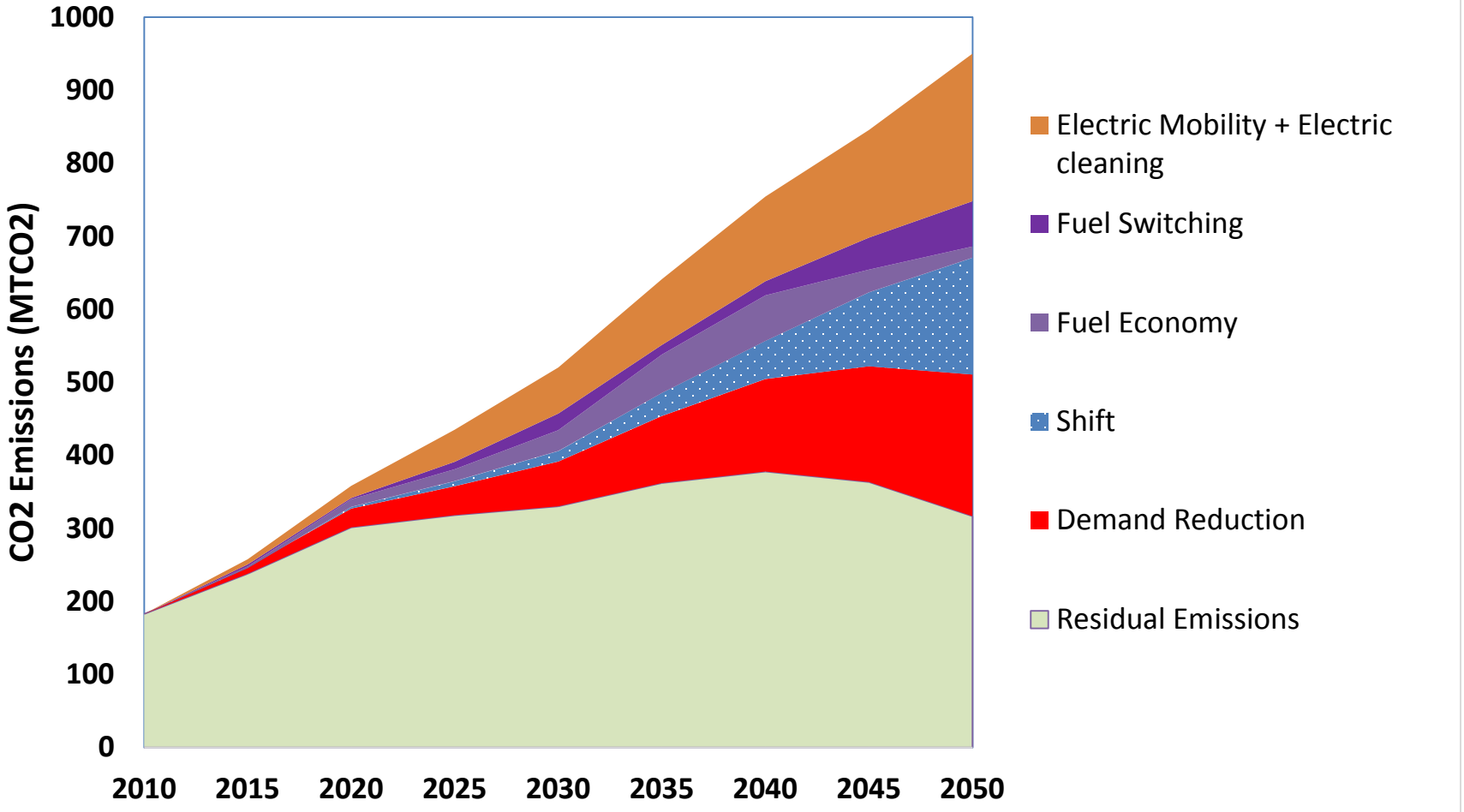
CO_2 Mitigation: Sustainable LCT Scenario



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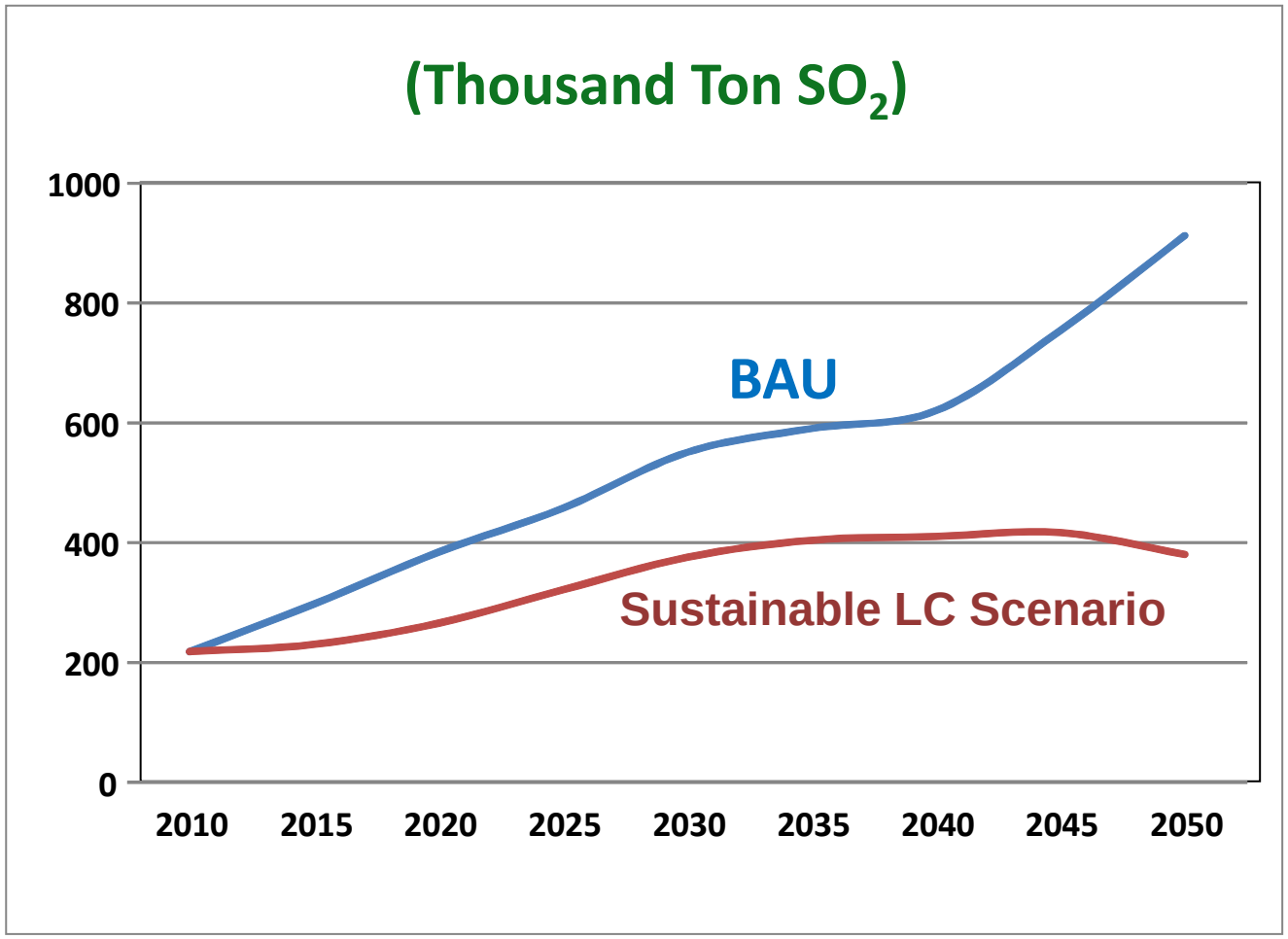
SO_2 Emissions from Transport



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Conclusions: Sustainable Low Carbon Development

1. **Scenario Storyline:** Multiple Objectives, Goals and Targets, Downscaled Strategies, Long-term and global perspective
2. **Framing and Method:** Back-casting from explicit targets
3. **Primary Energy and Technologies:** Portfolio; No silver bullet
4. **Policies and Measures:** Market and Non-market instruments
5. **CO_2 Emissions:** Direct and indirect measures
6. **Sector Policies (e.g. Transport):** Modal shifts, Demand reduction, Technology efficiency; Fuel mix
7. **Co-benefits:** Coordination for co- benefits, e.g. air pollution, energy security, energy access; Lower social value of carbon
8. **Implementation:** Missions Approach; Strategic orientation

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Thank You

UNEP Project Website: www.unep.org/transport/lowcarbon

AIM Website: www-iam.nies.go.jp/aim/

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